

WHAT IS CLAIMED IS:

1. An image processing apparatus comprising:
an edge detecting unit which identifies an area of
given image data as a gradation sequence area and a
5 character/line art area and which outputs edge
information of the character/line art on the basis of
this identification result;

a level converting unit which generates a strength
modulation signal in order to convert a level of said
10 image data into a value different for each area on the
basis of the edge information from said edge detecting
unit; and

a laser driver which outputs a laser drive signal
in order to form a picture dot larger than a standard
15 size in a predetermined area detected by said edge
detecting unit in response to a strength modulation
signal to be supplied from said level converting unit
with respect to said given image data.

2. An image processing apparatus according to
20 claim 1, further comprising:

a pulse width modulating unit which receives said
image data and which modulates this pulse width to
output the image data to said laser driver.

3. An image processing apparatus according to
25 claim 1, wherein said level converting unit generates
said strength modulation signal such that the strength
of the image formation of said character/line art area

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identified by said edge detecting unit is larger than the strength of other area.

4. An image processing apparatus according to claim 1, wherein said level converting unit generates said strength modulation signal such that the strength of the image formation of said character/line art area identified by said edge detecting unit is larger than the strength of said halftone area.

5. An image processing apparatus comprising:
an edge detecting unit which identifies an area of given image data as a gradation sequence area and a character/line art area and which outputs edge information of the character/line art on the basis of this identification result;

a smoothing processing unit which performs smoothing processing with respect to an image of a predetermined area identified by said edge detecting unit to output;

a level converting unit which generates a strength modulation signal in order to convert a level of said image data into a value different for each area on the basis of the edge information from said edge detecting unit; and

a laser driver which outputs a laser drive signal in order to form a picture dot larger than a standard size in a predetermined area detected by said edge detecting unit in response to a strength modulation

signal to be supplied from said level converting unit with respect to the image data provided with the smoothing processing by said smoothing processing unit.

5 6. An image processing apparatus according to claim 5, further comprising:

a pulse width modulating unit which modulates a pulse width of the image data provided with the smoothing processing by said smoothing processing unit and which outputs the image data to said laser driver.

10 7. An image processing apparatus according to claim 5, further comprising:

a smoothing processing unit which performs the smoothing processing with respect to the image data of a predetermined area identified by said edge detecting unit to output.

15 8. An image processing apparatus according to claim 5, wherein said level converting unit increases the number of bits of an identification signal indicating the identification result of said edge detecting unit and which adds a strength modulation signal to convert a level of said image data into another value for said every area as a portion of the identification signal.

20 9. An image processing apparatus according to claim 5, wherein said smoothing processing unit has determining means to determine a pixel width so as to smooth its outline on the basis of peripheral pixel

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information of target pixel with respect to the image of the predetermined area identified by said edge detecting unit.

10. An image processing apparatus comprising:

5 an edge detecting unit which identifies an area of given image data as a gradation sequence area and a character/line art area and which outputs edge information of the character/line art on the basis of this identification result;

10 a first level converting unit which converts a level of said image data detected as a character/line art area by said edge detecting unit so as to extend a dynamic range of said image data and which outputs said image data;

15 a second level converting unit which is provided with said image data whose level is converted by said first level converting unit so as to extend a dynamic range of said image data and said image data detected as a character/line art area by said edge detecting unit, and which converts levels of these image data; and

20 a laser driver which is provided said image data whose level is converted by said second level and which outputs a laser drive signal on the basis of these image data.

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11. An image processing apparatus according to claim 10, further comprising:

5 a smoothing processing unit which performs
smoothing processing with respect to the image data of
the character/line art area identified by said edge
detecting unit and which supplies said image data to
said first level converting unit.

12. An image processing apparatus according to
claim 10, further comprising:

10 a pulse width modulating unit which modulates a
pulse width of said image data whose level is converted
by said second level converting unit and which outputs
said image data to said laser driver.

15 13. An image processing apparatus according to
claim 11, wherein said smoothing processing unit has
determining means to determine a pixel width so as to
smooth its outline on the basis of peripheral pixel
information of target pixel with respect to said image
of the predetermined area identified by said edge
detecting unit.

20 14. An image processing apparatus comprising:
a level converting unit which is provided with
given image data and edge information thereof and which
generates a strength modulation signal in order to
convert a level of said image data into a value
different for each area on the basis of the given image
25 data and the edge information thereof; and

a laser driver which outputs a laser drive signal
in order to form a picture dot larger than a standard

size in a predetermined area detected by said edge
detecting unit corresponding to said edge information
in response to the strength modulation signal to be
supplied from said level converting unit with respect
5 to said given image data.

15. An image forming apparatus comprising:

an edge detecting unit which identifies an area of
given image data as a gradation sequence area and a
character/line art area and which outputs edge
10 information of the character/line art on the basis of
this identification result;

a level converting unit which generates a strength
modulation signal in order to convert a level of said
image data into a value different for each area on the
15 basis of the edge information from said edge detecting
unit;

a laser driver which outputs a laser drive signal
in order to form a picture dot larger than a standard
size in a predetermined area detected by said edge
20 detecting unit in response to the strength modulation
signal to be supplied from said level converting unit
with respect to said given image data; and

a laser unit which forms an image on a recording
medium on the basis of said image data in response to a
25 laser drive signal to be supplied from said laser
driver.

16. An image forming apparatus comprising:

an edge detecting unit which identifies an area of
given image data as a gradation sequence area and a
character/line art area and which outputs edge
information of the character/line art on the basis of
5 this identification result;

a smoothing processing unit which performs
smoothing processing with respect to an image of a
predetermined area identified by said edge detecting
unit to output;

10 a level converting unit which generates a strength
modulation signal in order to convert a level of said
image data into a value different for each area on the
basis of the edge information from said edge detecting
unit;

15 a laser driver which outputs a laser drive signal
in order to form a picture dot larger than a standard
size in a predetermined area detected by said edge
detecting unit in response to the strength modulation
signal to be supplied from said level converting unit
20 with respect to the image data provided with the
smoothing processing by said smoothing processing unit;
and

a laser unit which forms an image on a recording
medium on the basis of said image data in response to a
25 laser drive signal to be supplied from said laser
driver.

17. An image forming apparatus comprising:

an edge detecting unit which identifies an area of
given image data as a gradation sequence area and a
character/line art area and which outputs edge
information of the character/line art on the basis of
5 this identification result;

10 a first level converting unit which converts a
level of said image data detected as a character/line
art area by said edge detecting unit so as to extend a
dynamic range of said image data and outputs said image
data;

15 a second level converting unit which is provided
with the image data whose level is converted so as to
extend a dynamic range of said image data and said
image data detected as a character/line art area by
said edge detecting unit and which converts levels of
these image data;

20 a laser driver which is provided with said image
data whose level is converted by said second level
converting unit and which outputs a laser drive signal
on the basis of these image data; and

a laser unit which forms an image on the basis of
said image data on a recording medium in response to a
laser signal to be supplied by said laser driver.